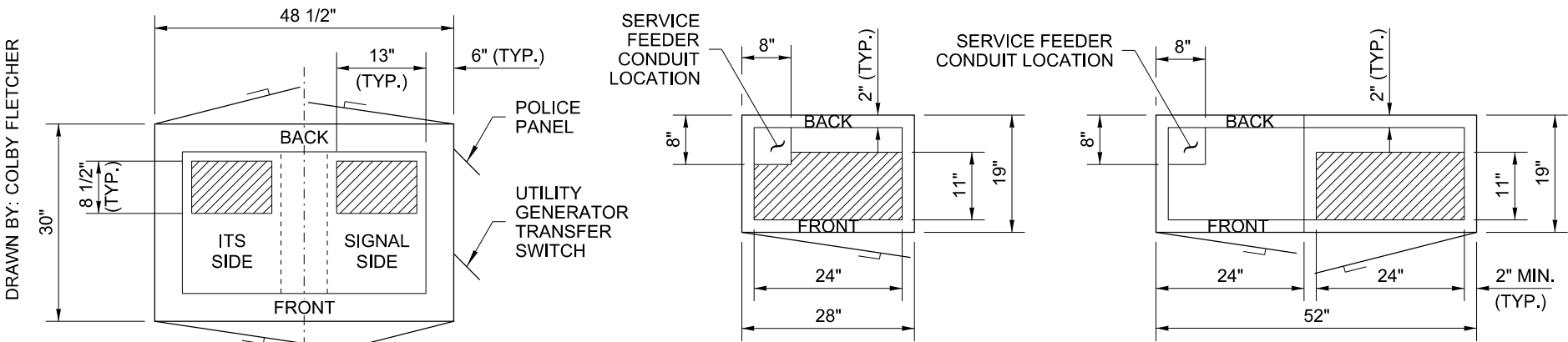
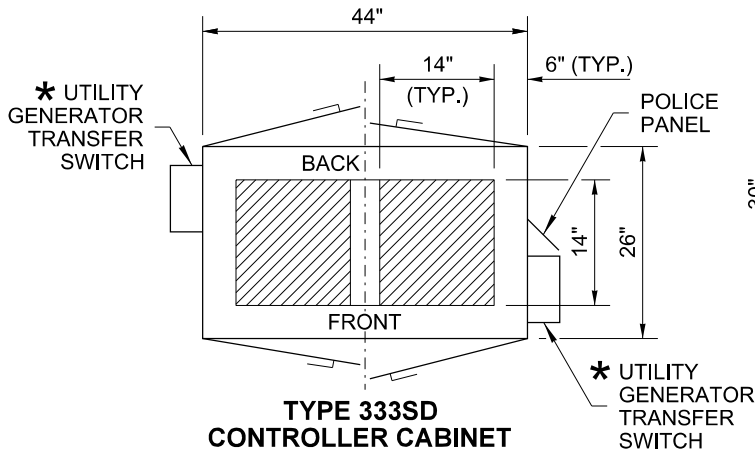


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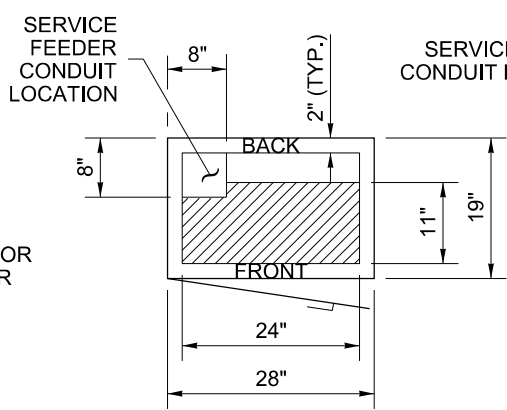


TYPE 332D  
CONTROLLER CABINET

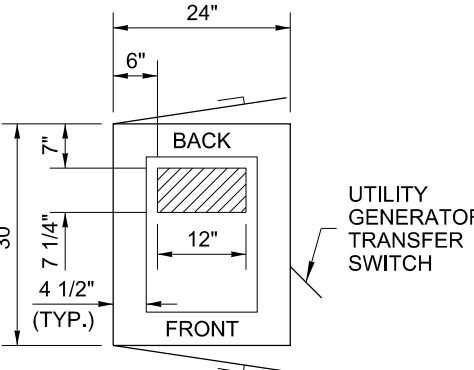


TYPE 333SD  
CONTROLLER CABINET

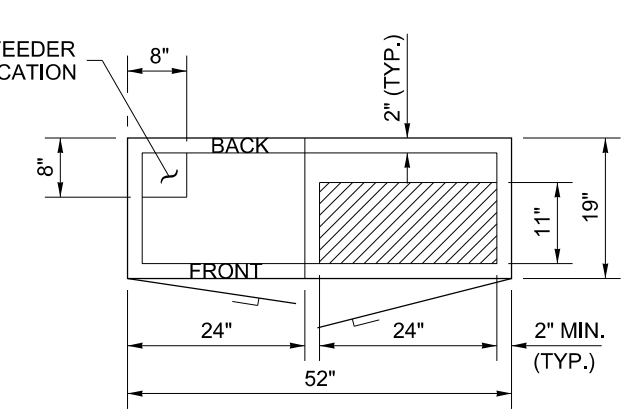
\* TO BE INSTALLED BY REGION MAINTAINANCE PERSONNEL ~ PROVIDE A 15' (FT) PIGTAIL (SEE NOTE 12)



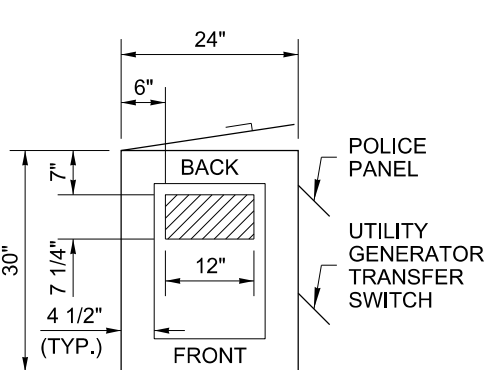
TYPE D  
SERVICE CABINET



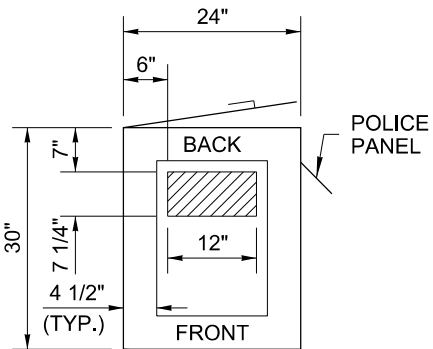
TYPE 332 UNINTERRUPTABLE  
POWER SUPPLY CABINET



TYPE E  
SERVICE CABINET



TYPE 332  
CONTROLLER CABINET



TYPE 334

### CONSTRUCTION NOTES

- 1 Drive ground rods before placing concrete. Move rod(s) and drain tiles with cover(s) as required to achieve full ground penetration. Maintain a 6' (ft) minimum clearance between ground rods and 6" (in) from foundation edge as detailed on **Standard Plan J-60.05**.
- 2 GRS conduits penetrating all cabinets shall be terminated with grounding end bushing and bonded to the cabinet grounding bus. All PVC conduits penetrating cabinet shall be terminated with end bell bushings.
- 3 Install conduit couplings on all conduits. Place coupling tops flush with top of concrete. If PVC conduits are specified, the conduit stub and end bell bushing shall not be glued to the coupling.
- 4 4" (in) diam. x 1/2" (in) deep sump. Slope foundation within cabinet footprint toward sump. Drainpipe shall be 3/8" (in) diam. polyethylene or copper tubing.
- 5 The Type D Service shall not be installed on a raised section. All other cabinets shall be installed on 3 1/2" (in) or 9" (in) cabinet footing.
- 6 Cabinet power supply conduit.
- 7 Conduits for service grounding electrodes.
- 8 When distance detailed in Typical Foundation Plan is greater than 8' (ft), this conduit and conductor shall be deleted.

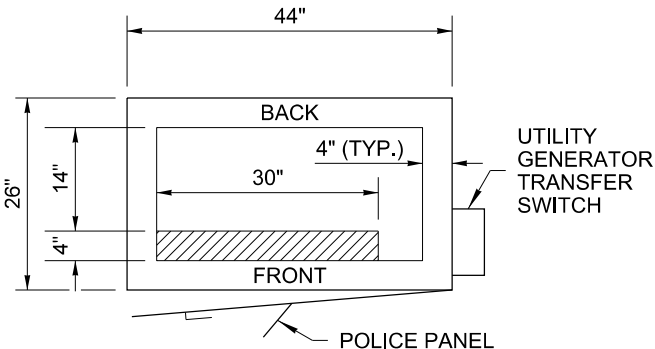
CONDUIT PLACEMENT LOCATION AREA (OR TRANSFORMER HIGH-VOLTAGE CONDUIT AREA)

LOW-VOLTAGE CONDUIT PLACEMENT LOCATION

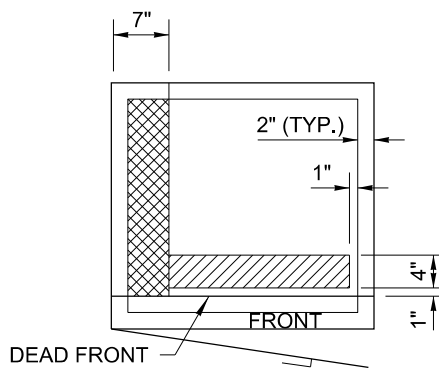
TABLE		
CONTROLLER OR CABINET BASE	SIZE W x D (IN)	CAPACITY CONDUIT DIAMETER (IN)
TYPE 332	24" x 30"	12"
TYPE 332D	48.5" x 30"	24" ①
NEMA P44	44" x 26"	15"
TYPE 333SD	44" x 26"	48" ②
TYPE 334	24" x 30"	12"
TRANSFORMER	SIZE W x D (IN)	
UP TO 3 KVA	18" x 12"	8"
3.1 TO 12.5 KVA	24" x 20"	12"
12.6 TO 35.0 KVA	32" x 30"	15"
UNINTERRUPTABLE POWER SUPPLY	SIZE W x D (IN)	
332 CABINET	24" x 30"	12"

① 12" (IN) OF CONDUIT IN EACH LOCATION SHOWN

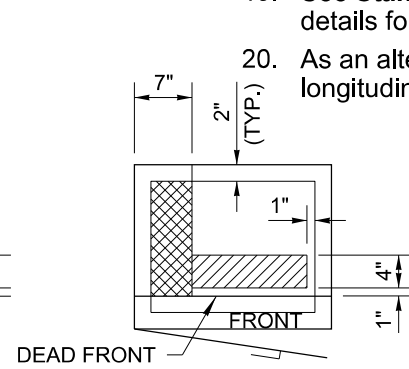
② 24" (IN) OF CONDUIT IN EACH LOCATION SHOWN



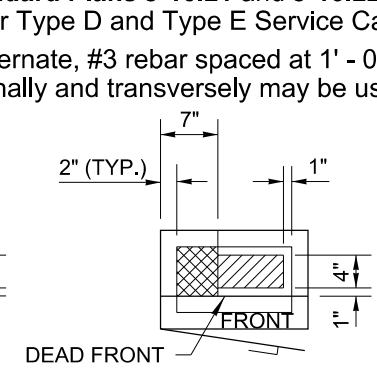
NEMA P44  
CONTROLLER CABINET



12.6 TO 35.0 KVA  
TRANSFORMER



3.1 TO 12.5 KVA  
TRANSFORMER

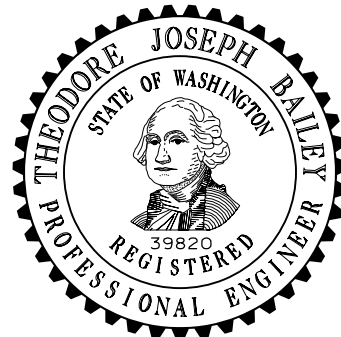


UP TO 3 KVA  
TRANSFORMER

### CABINET FOOTPRINT AND CONDUIT PLACEMENT LOCATIONS

### NOTES

- 1 The cabinets shown in these details are shown for illustrative purposes only. The Contractor shall verify the plans and substitute those cabinets in place of the cabinets shown in these details. The Contractor shall install each cabinet type in the locations and orientations shown in these details.
- 2 The Contractor shall install the conduits in the locations shown. Conduits shall extend 2" (in) min. above the coupling. The grounded end bushing on GRS conduit and the end bell bushing on PVC conduit shall extend 3" (in) max. above the coupling. The conduit containing unfused utility conductors shall extend into the utility chase.
- 3 The ground rods, drain tiles, associated conduits, and #4 rebar (90° with 30" (in) legs), may be omitted if no transformer or service cabinet is to be installed.
- 4 The cabinets shall be attached to the foundation with 4 each: 1/2" (in) x 10" (in) x 2" (in) x 4" (in) anchor bolts (see Detail on Sheet 4 of 6), washers, and nuts conforming to **Standard Specification 9-06.5(1)** and hot-dip galvanized after fabrication in accordance with AASHTO M 232. Locate anchor bolts per cabinet manufacturer. Stainless steel epoxy anchors may be used as an alternative, and shall be 1/2" (in) diameter x 9" (in), or 5/8" (in) diameter x 8" (in). All threaded rod (conforming to ASTM F593), washers (conforming to ASTM A240), and nuts (conforming to ASTM F594), shall be Type 304 stainless steel. Bolts shall extend 1 1/2" (in) min. to 2" (in) max. above the concrete pad.
- 5 All reinforcing steel shall be embedded 2" (in) below surface of concrete.
- 6 Place a 1/2" (in) bead of silicone between cabinets and foundation.
- 7 Two ground rods are required for foundations with a service cabinet or transformer cabinet. See **Standard Plan J-60.05** for details.
- 8 Concrete shall be class 3000. See **Standard Specification 8-20.3(4)**.
- 9 Verify dead front locations from manufacturer prior to placing conduit in foundation.
- 10 Foundations installed in, or adjacent to, sidewalks shall be constructed with the top flush with the sidewalk surface and grade, not including concrete risers for cabinets. Omit chamfers where foundation abuts sidewalk.
- 11 If the slope is 3H : 1V or steeper, special considerations may be necessary for safety reasons. Coordinate with Maintenance and Project Engineer.
- 12 For Type 333SD Controller Cabinet, the cabinet vendor shall allow the Utility Transfer Switch to be installed on either side of the cabinet. The Utility Transfer Switch unit shall be shipped inside the cabinet for field installation by Region maintenance personnel.
- 13 Height of cabinet riser shall be adjusted to serve environmental needs. Type D Service cabinet shall have no riser. NEMA P44, Type 333SD, and Type B Modified shall have a 9' (in) riser. All other cabinets shall have a 3 1/2" (in) riser. See Contract for alternative height. Adjust length of conduit and rebar accordingly.
- 14 Use (1) #4 hoop for a 3 1/2" (in) cabinet footing and (2) #4 hoops for a 9" (in) cabinet footing.
- 15 The Police Panel location is set by industry standards on all Controller Cabinets.
- 16 See **Standard Plan J-10.20** for additional Foundation Construction and Conduit Routing for Type B Modified Service Cabinet with Controller Cabinet.
- 17 Verify pad size and location with Project Engineer prior to placing.
- 18 Field bend #4 rebar around the Generator Anti-Theft Tie-Down Unit when required.
- 19 See **Standard Plans J-10.21** and **J-10.22** for additional details for Type D and Type E Service Cabinets.
- 20 As an alternate, #3 rebar spaced at 1' - 0" O.C. longitudinally and transversely may be used.



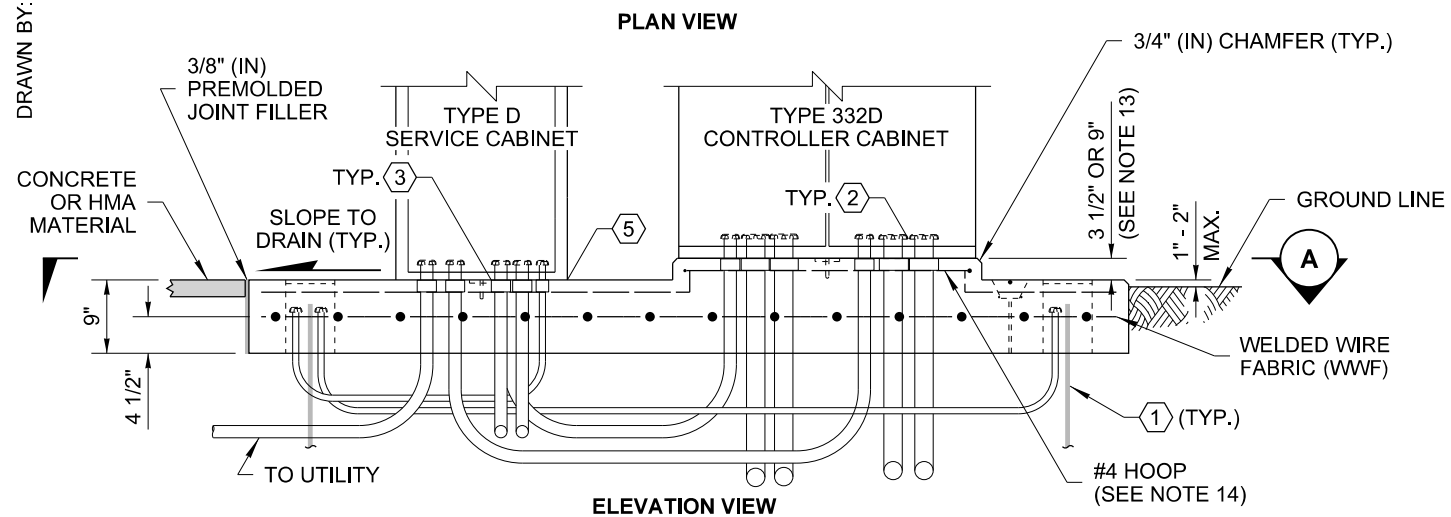
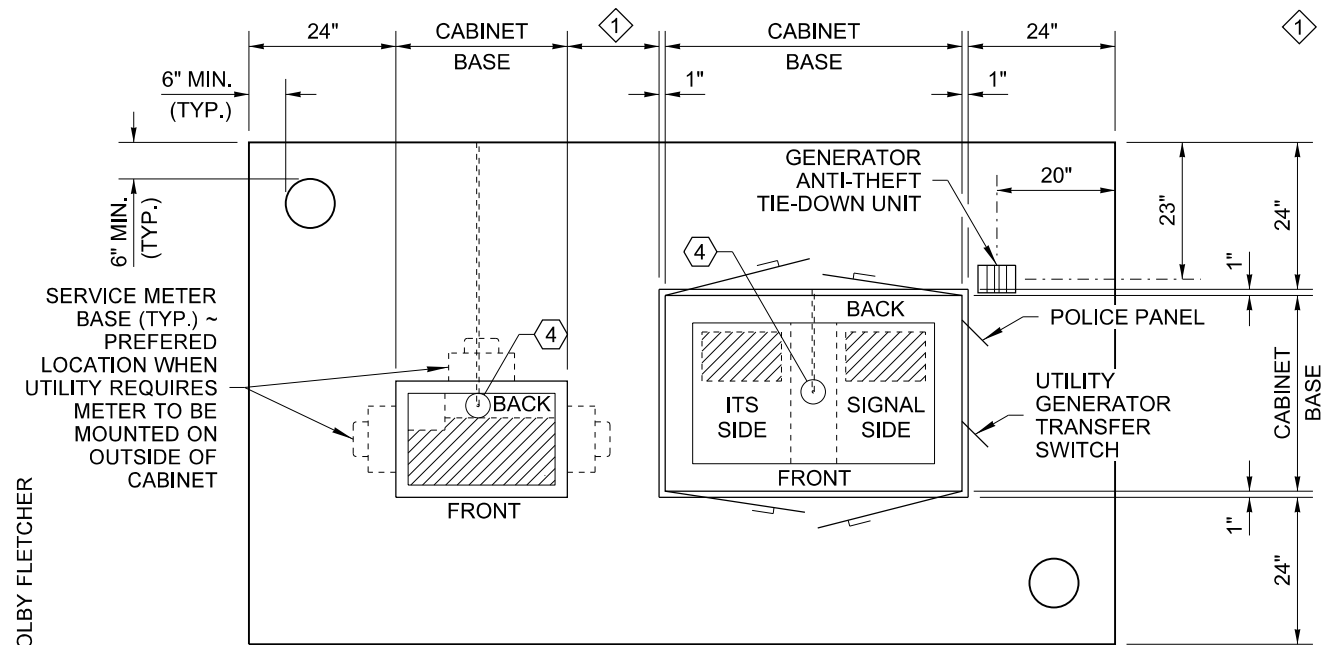
### CABINET ORIENTATION CONDUIT LAYOUT AND FOUNDATION DETAIL STANDARD PLAN J-10.10-03

SHEET 1 OF 6 SHEETS

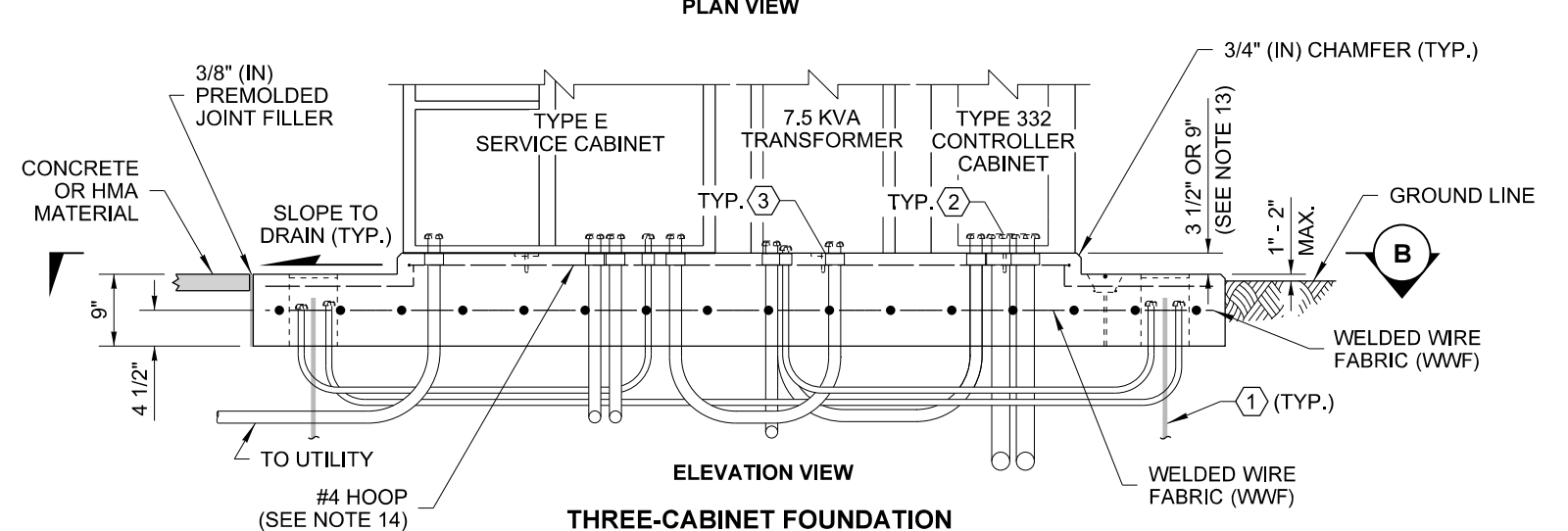
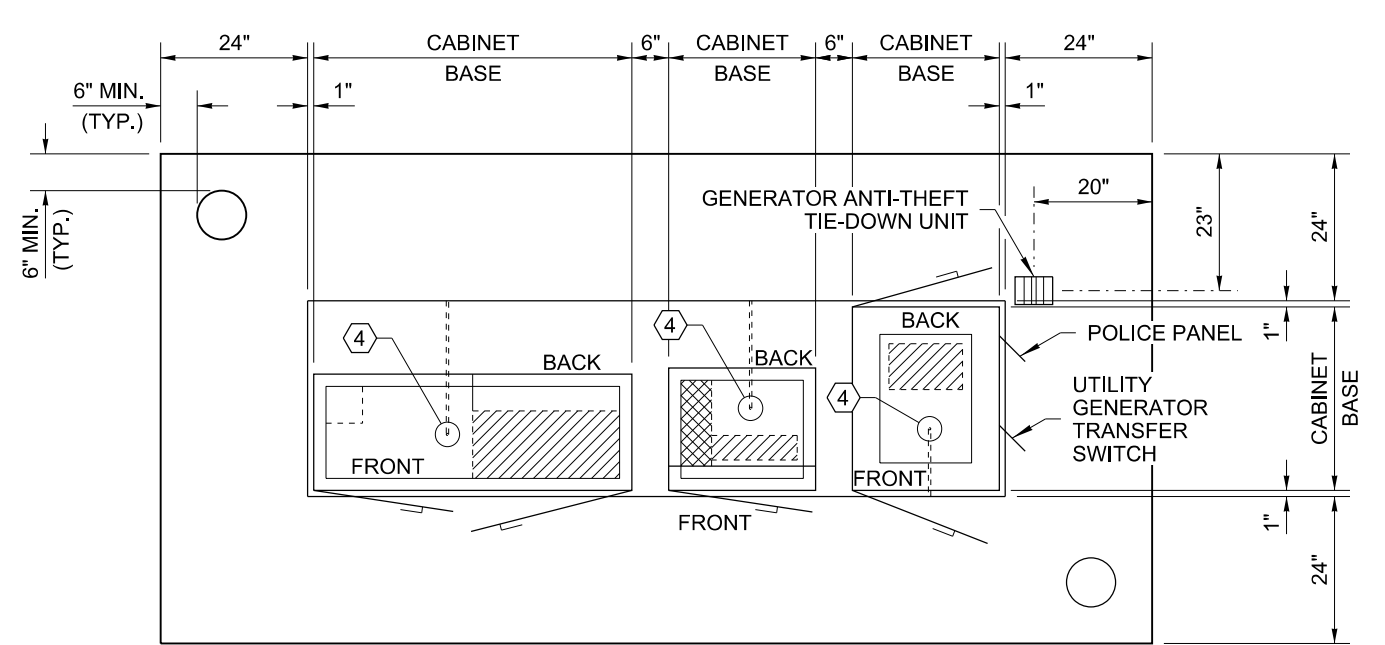
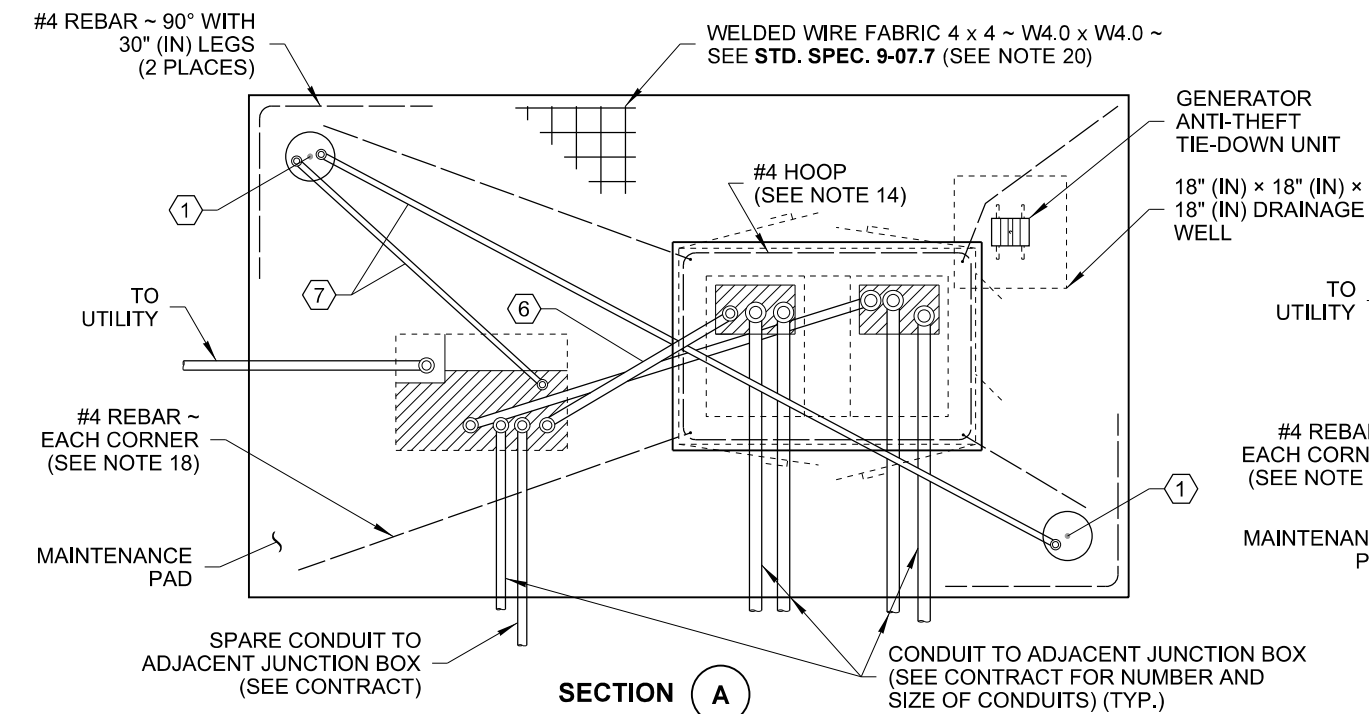
APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER  
Washington State Department of Transportation

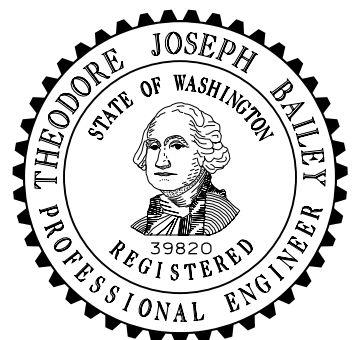
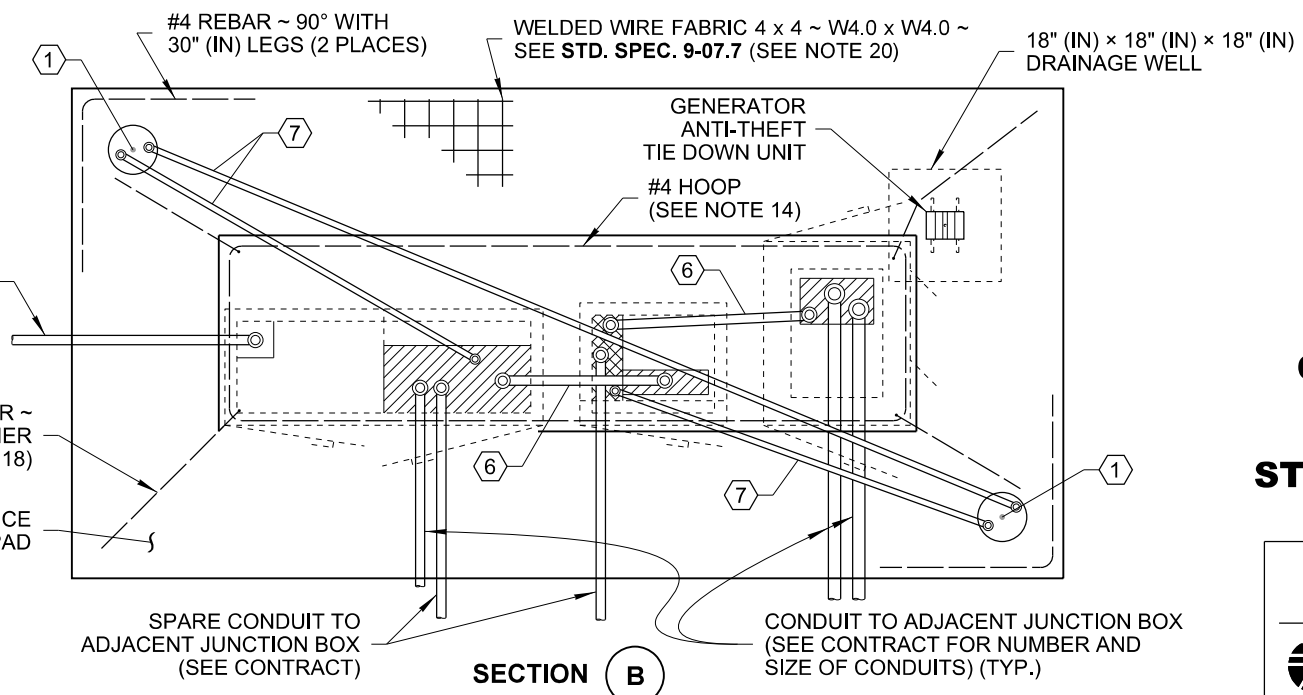
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**TWO-CABINET FOUNDATION**  
(TYPE D SERVICE AND TYPE 332D CONTROLLER CABINET SHOWN)



**THREE-CABINET FOUNDATION**  
(TYPE E SERVICE, 7.5 KVA TRANSFORMER AND TYPE 332 CONTROLLER CABINET SHOWN)

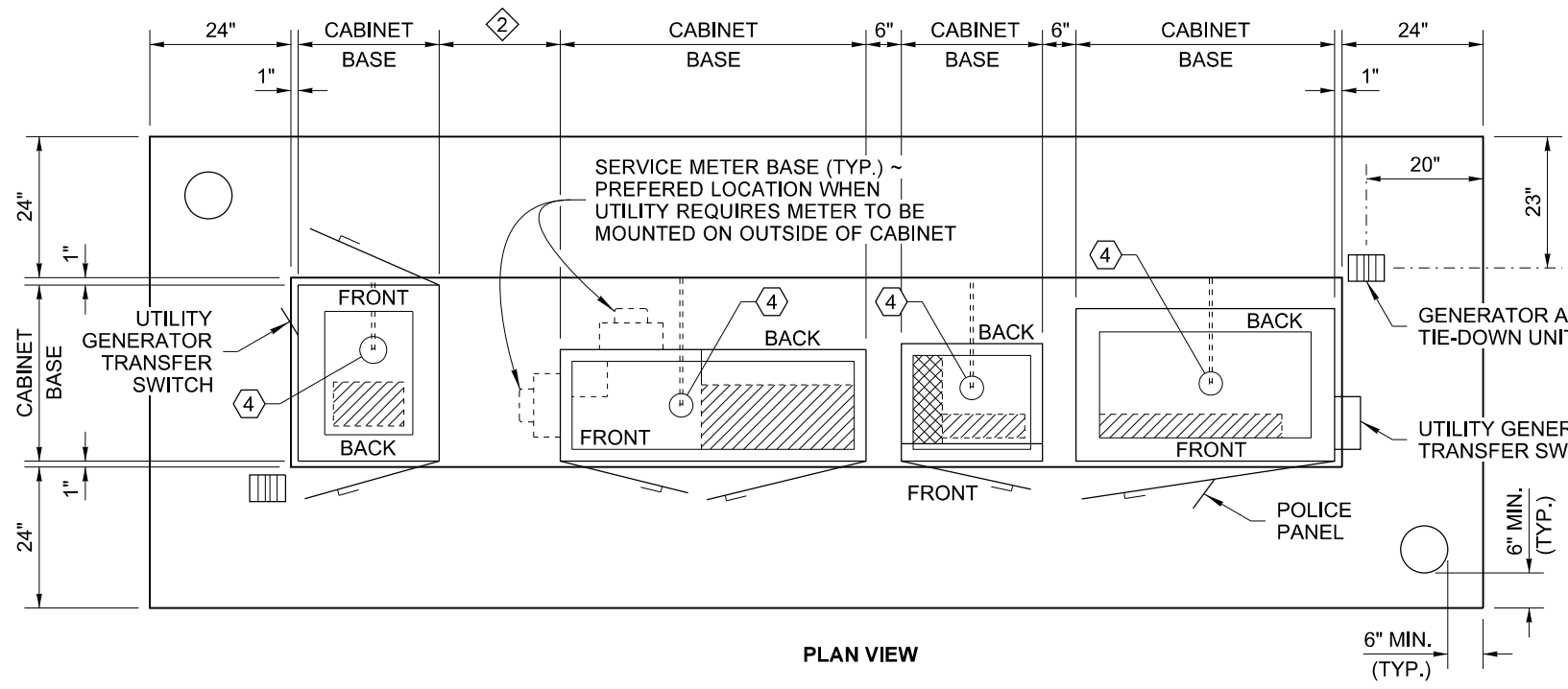


**CABINET ORIENTATION  
CONDUIT LAYOUT AND  
FOUNDATION DETAIL  
STANDARD PLAN J-10.10-03**

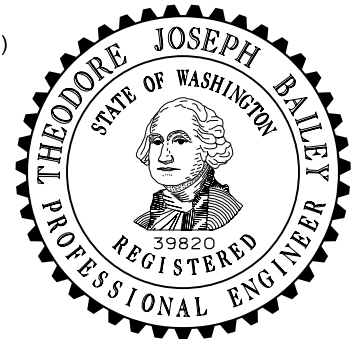
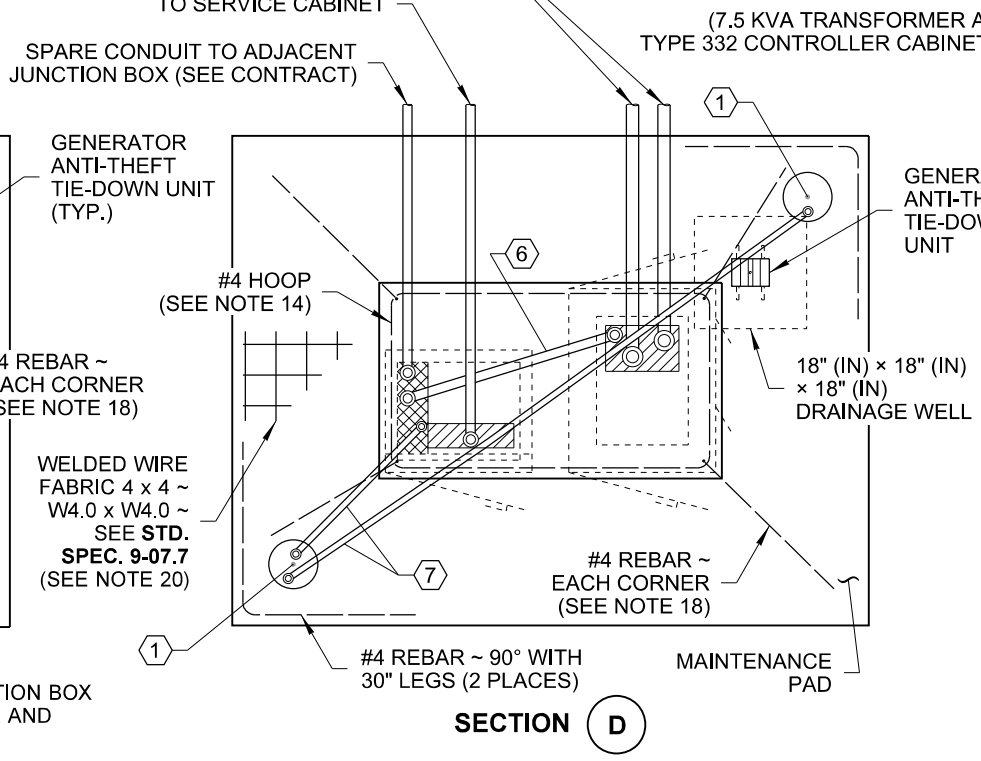
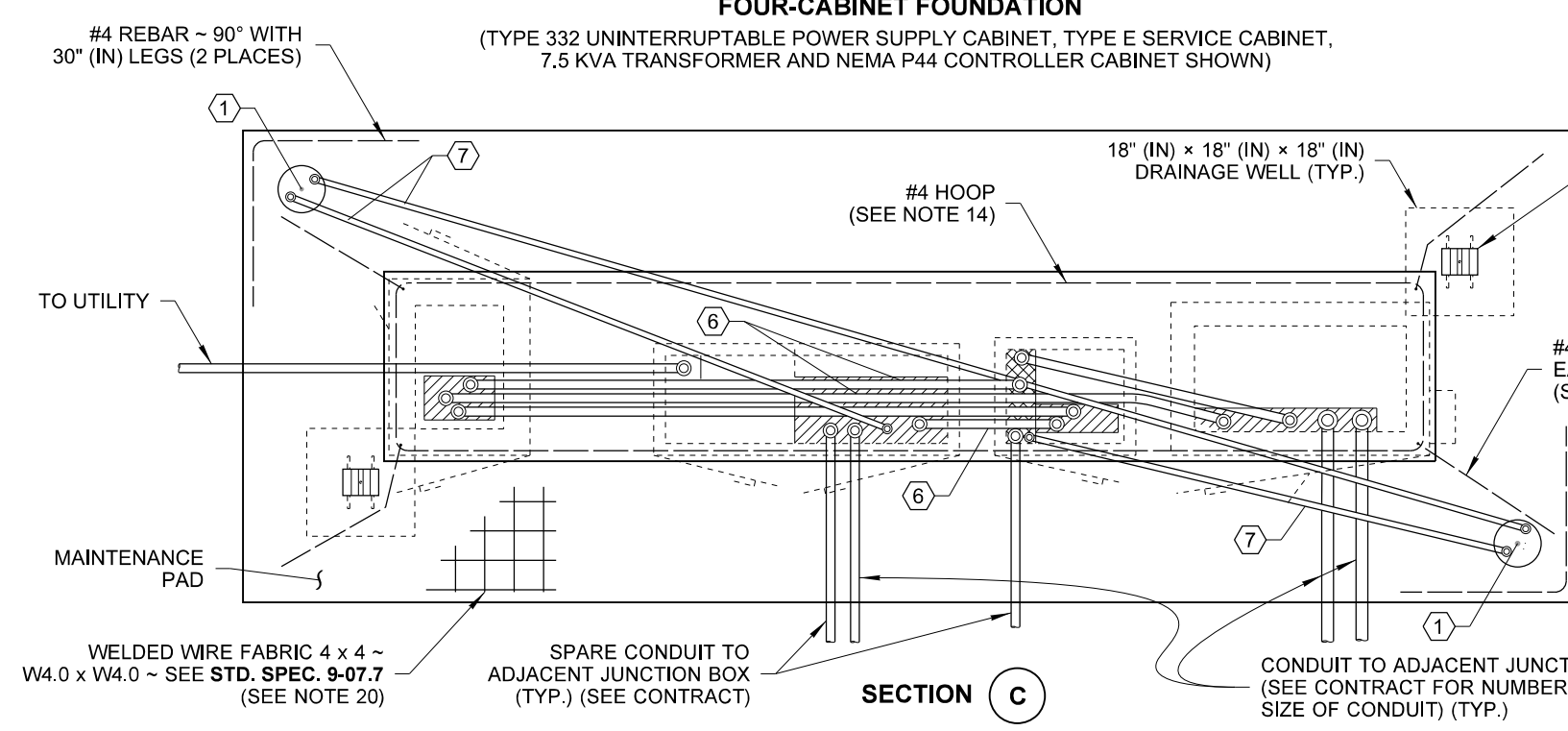
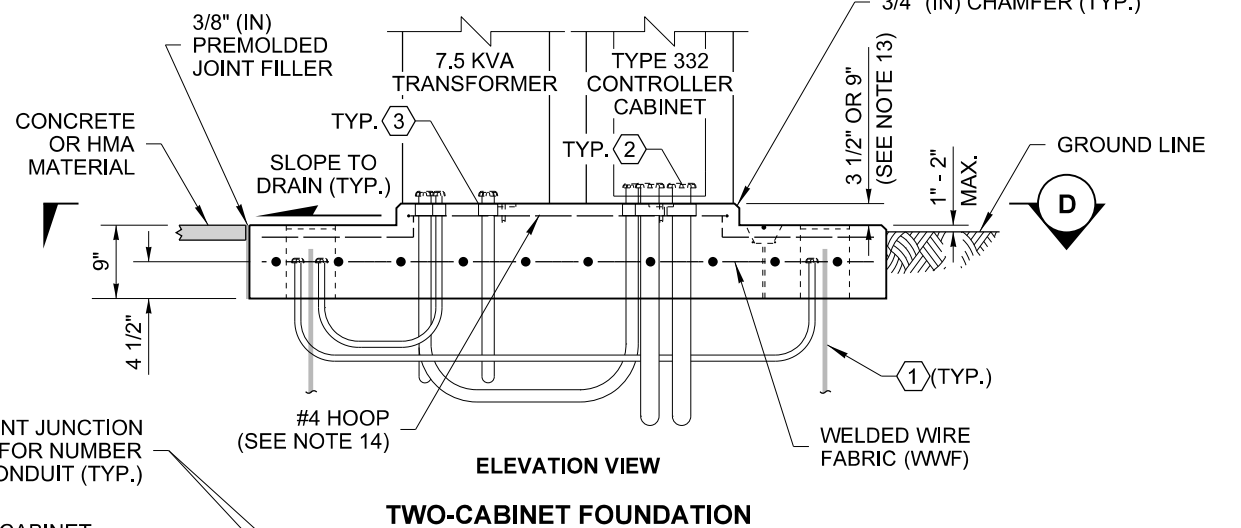
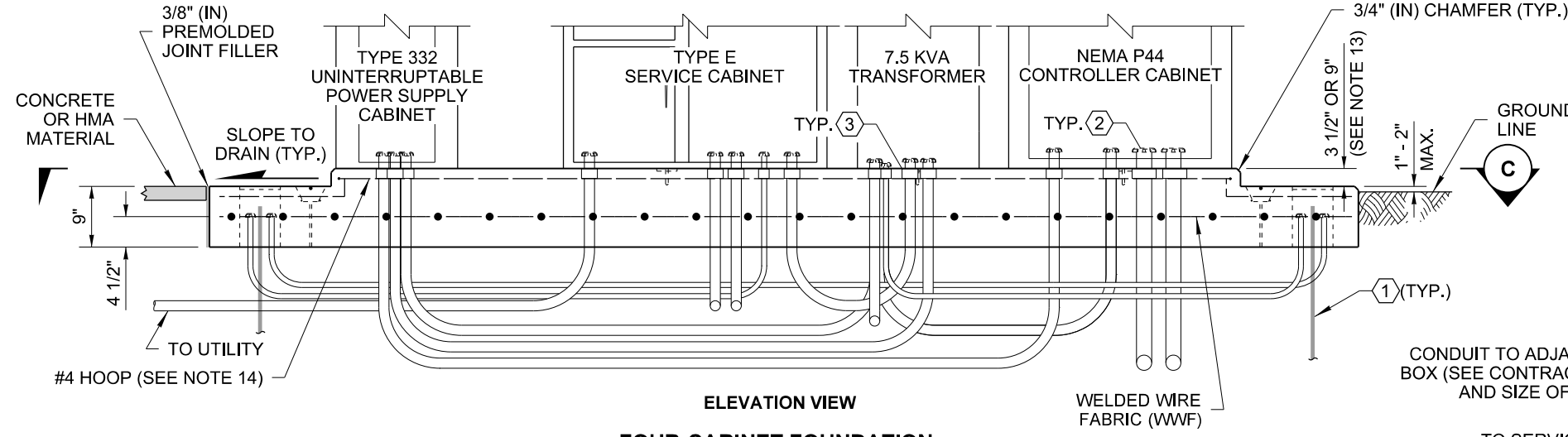
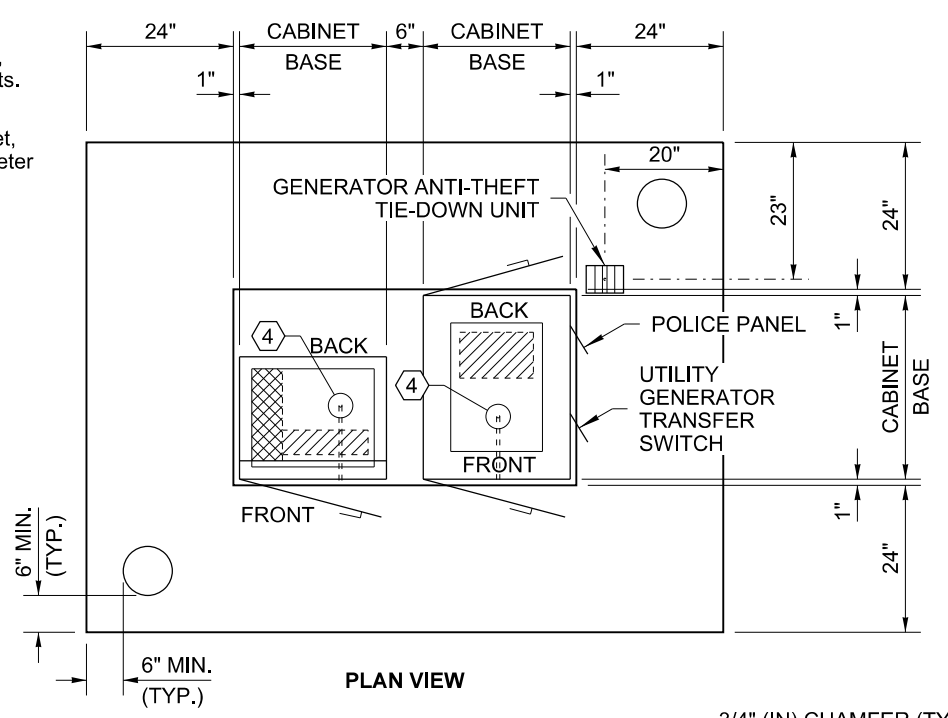
SHEET 2 OF 6 SHEETS

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2 With Meter Base mounted on inside of Service Cabinet, allow 6" (in) between cabinets.  
With Meter Base mounted on outside of Service Cabinet, allow 36" (in) from face of meter to adjacent cabinet. See Standard Plan J-10.22.

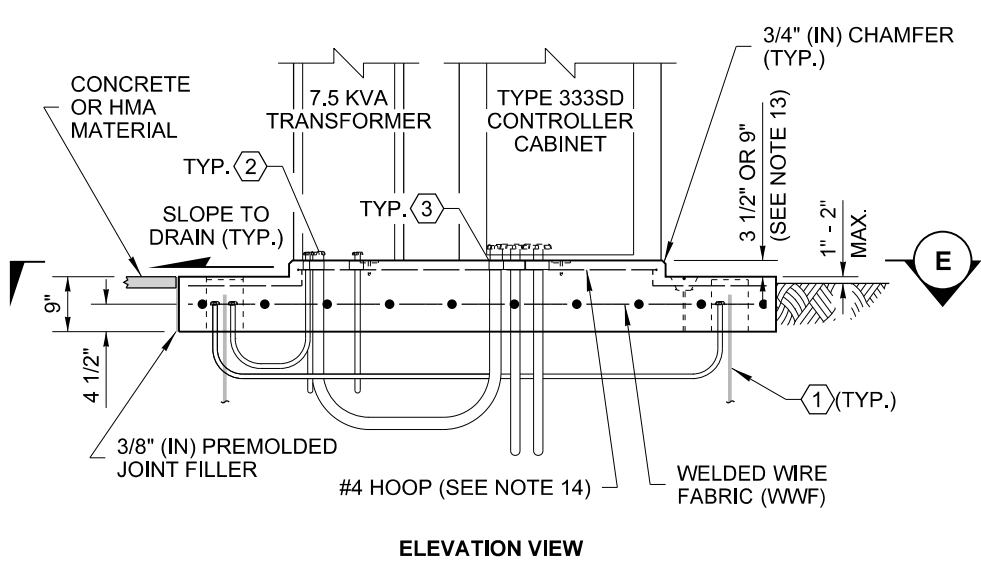
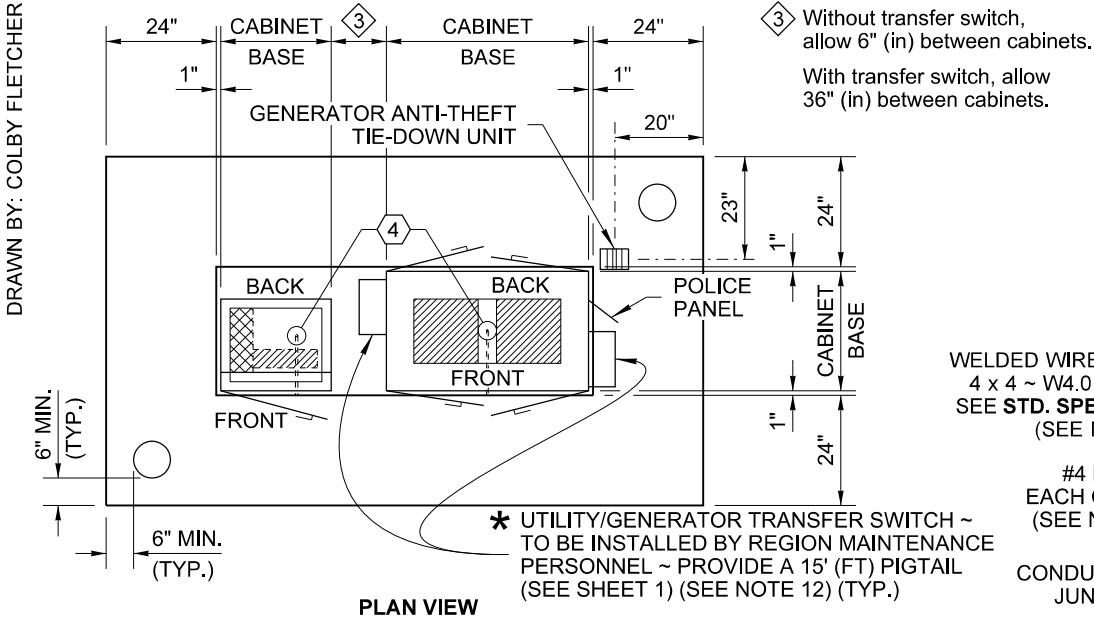


# CABINET ORIENTATION CONDUIT LAYOUT AND FOUNDATION DETAIL STANDARD PLAN J-10.10-03

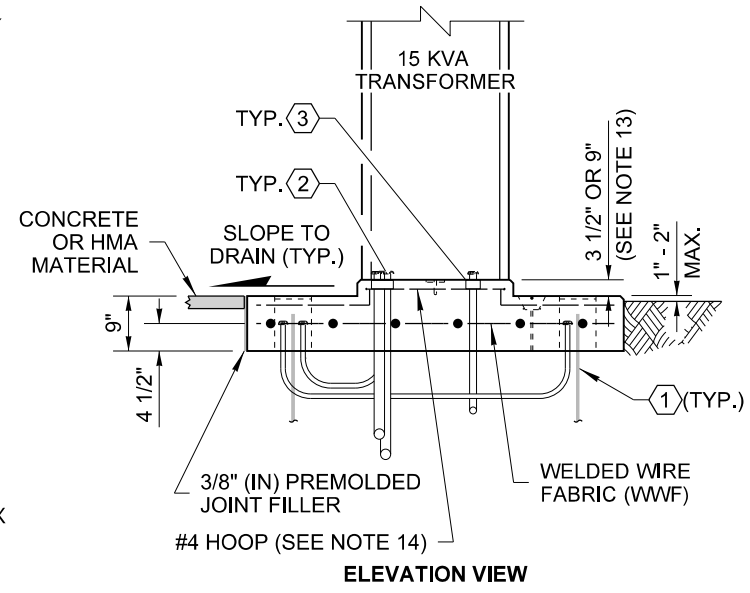
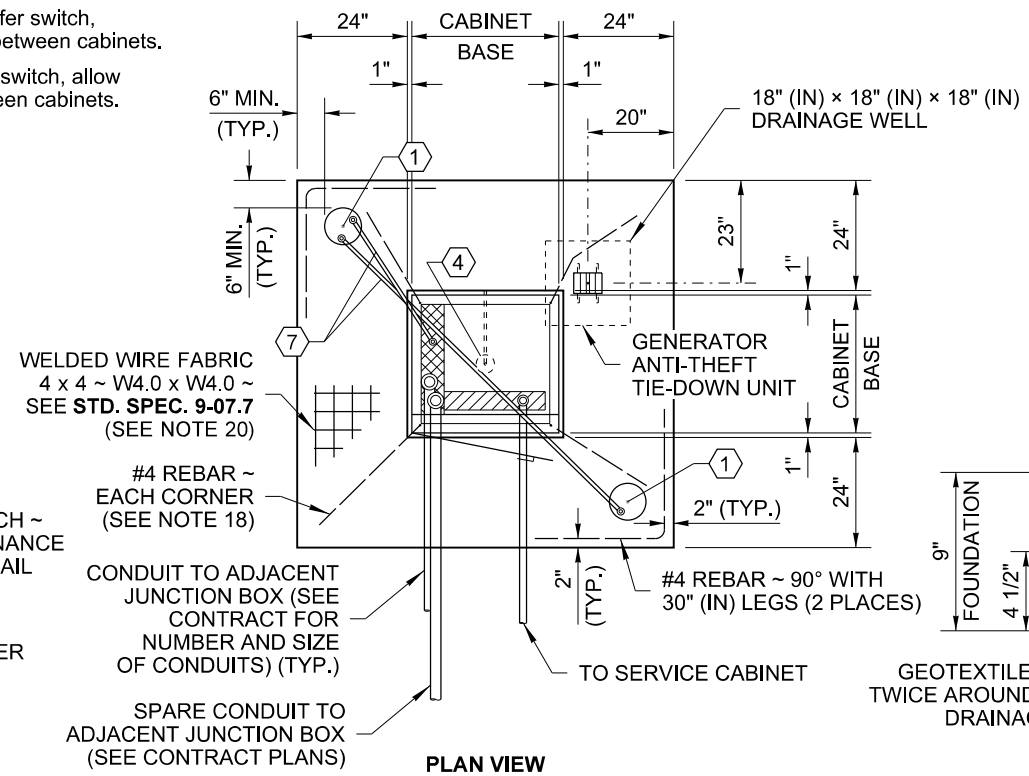
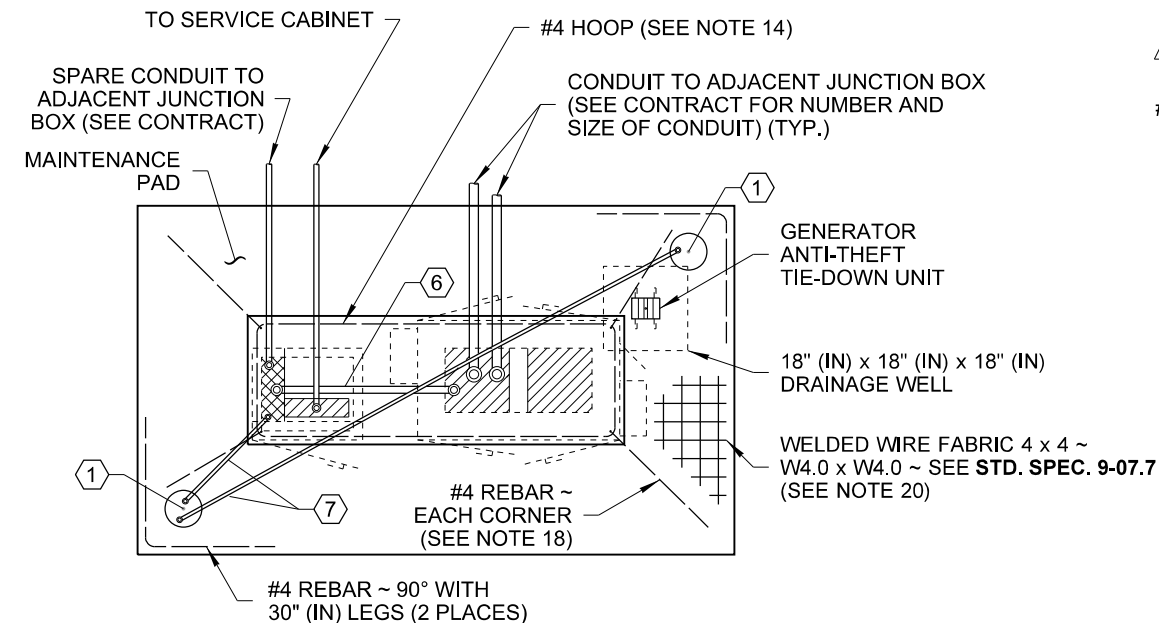
SHEET 3 OF 6 SHEETS

APPROVED FOR PUBLICATION

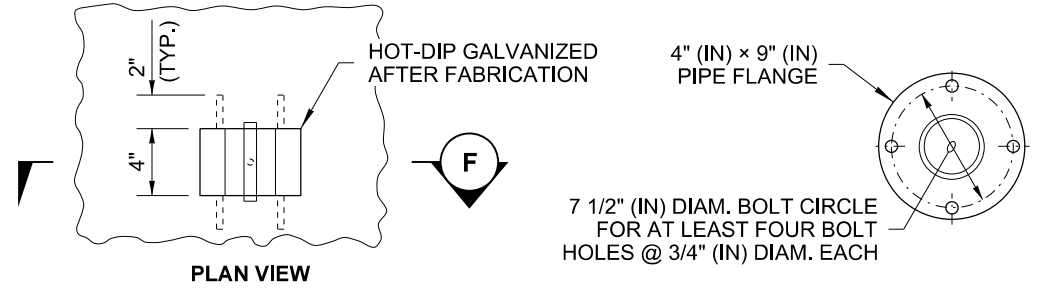
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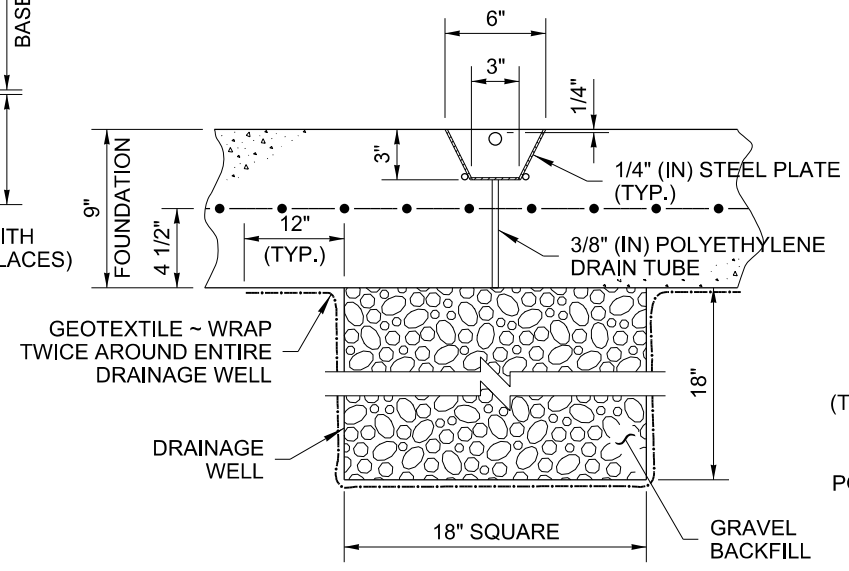
**TWO-CABINET FOUNDATION**  
(7.5 KVA TRANSFORMER AND TYPE 333SD CONTROLLER CABINET SHOWN)



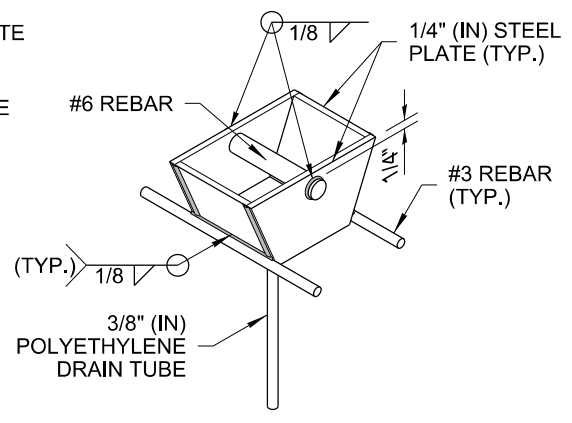
**SINGLE-CABINET FOUNDATION**  
(15 KVA TRANSFORMER SHOWN)



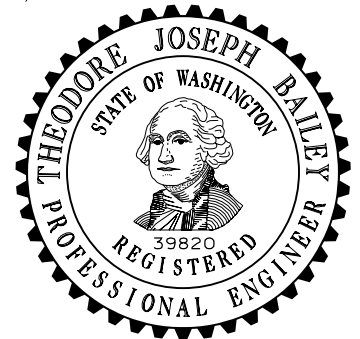
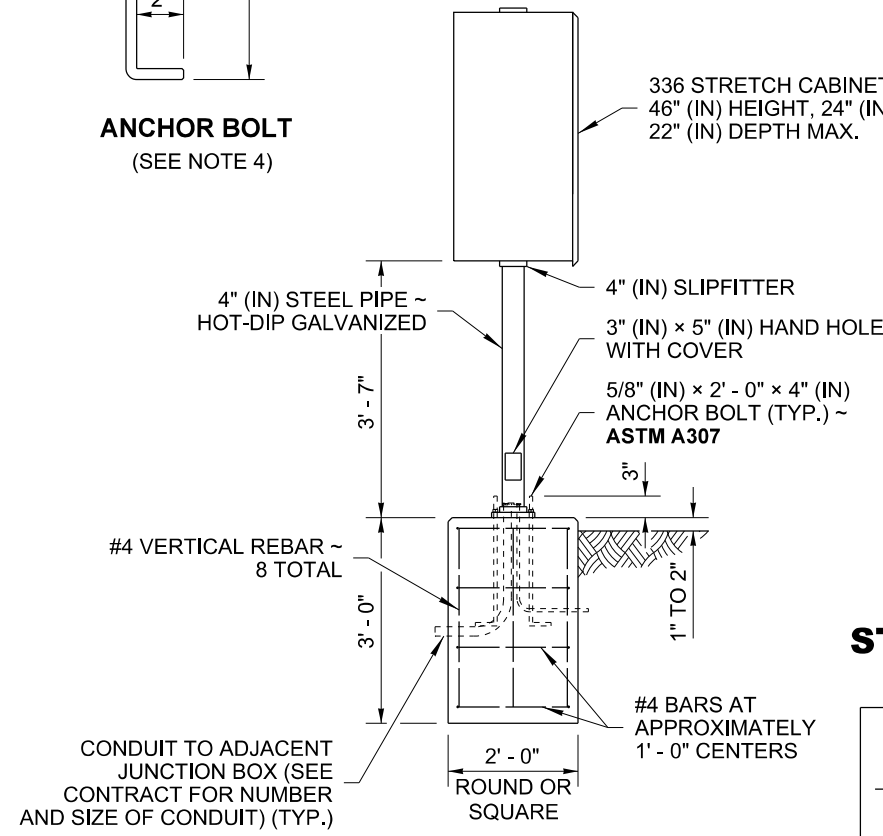
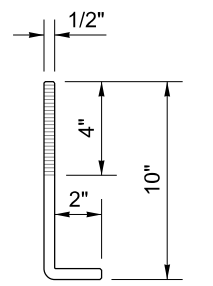
**PEDESTAL BASE DETAIL**



**SECTION F**



**GENERATOR ANTI-THEFT TIE-DOWN UNIT**  
(FABRICATE IF NOT AVAILABLE COMMERCIALY)

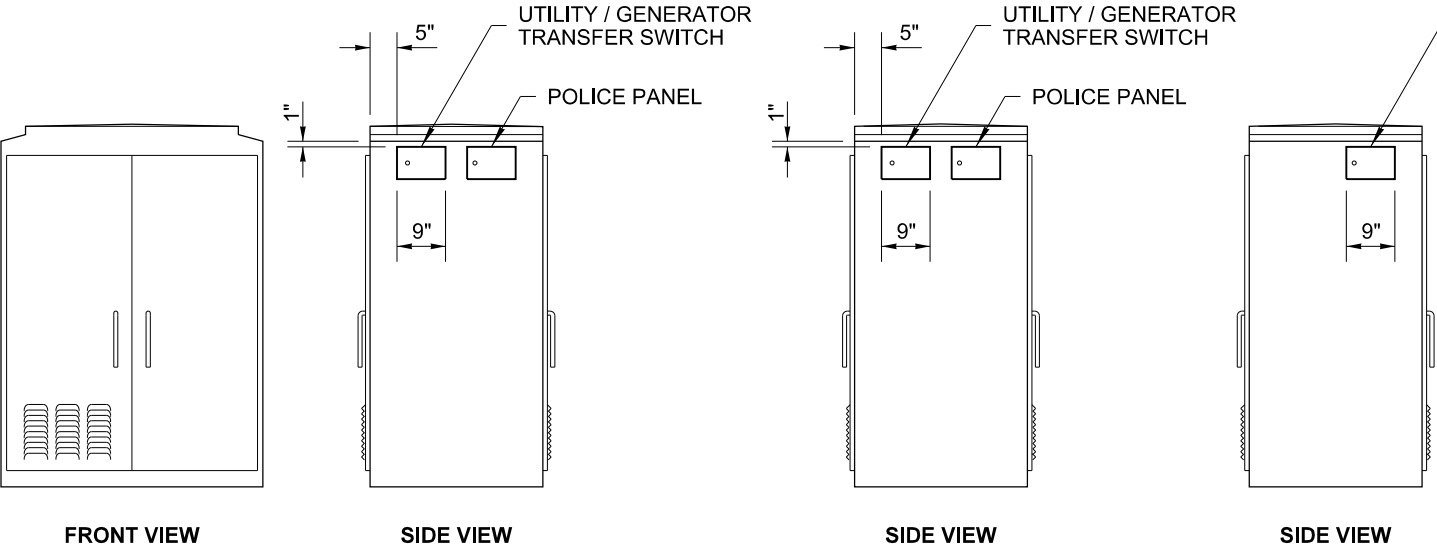


**CABINET ORIENTATION  
CONDUIT LAYOUT AND  
FOUNDATION DETAIL  
STANDARD PLAN J-10.10-03**

SHEET 4 OF 6 SHEETS

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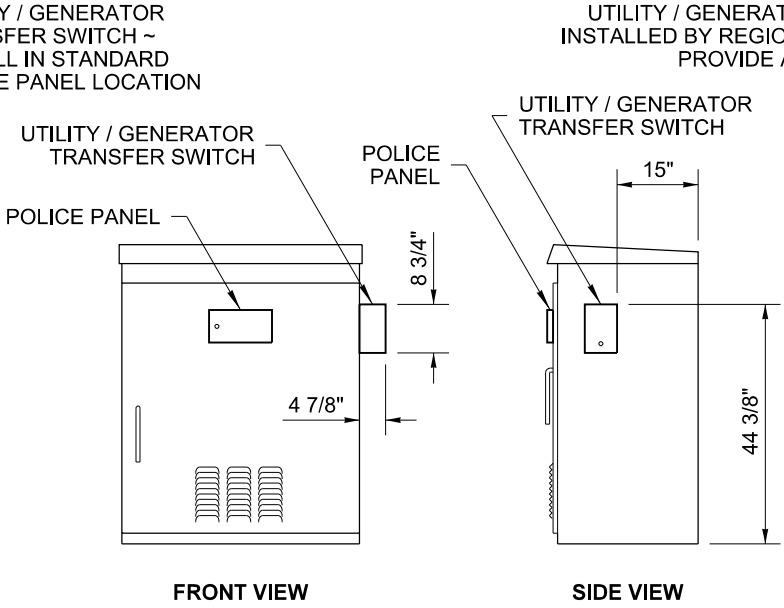
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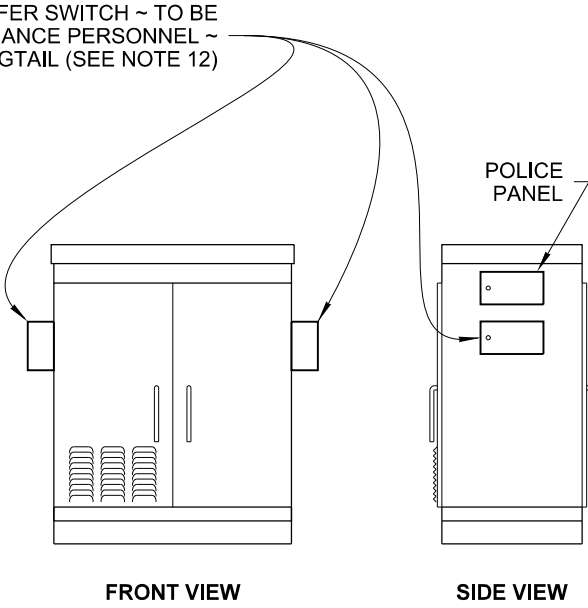
TYPE 332D CONTROLLER CABINET

TYPE 332 CONTROLLER CABINET

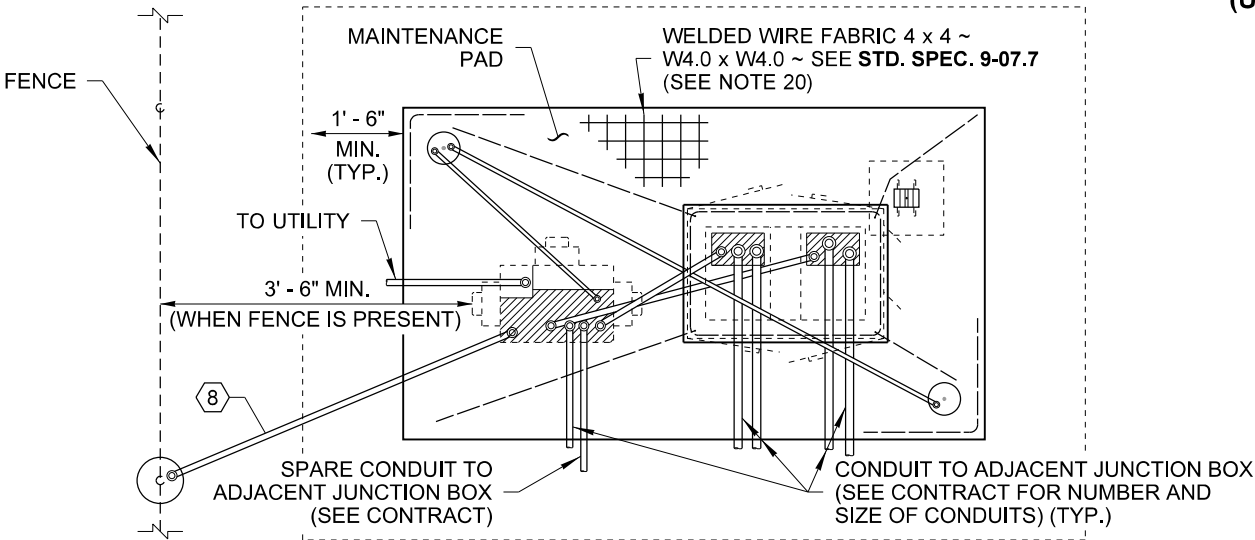
TYPE 332 UNINTERRUPTABLE POWER SUPPLY (UPS) CABINET



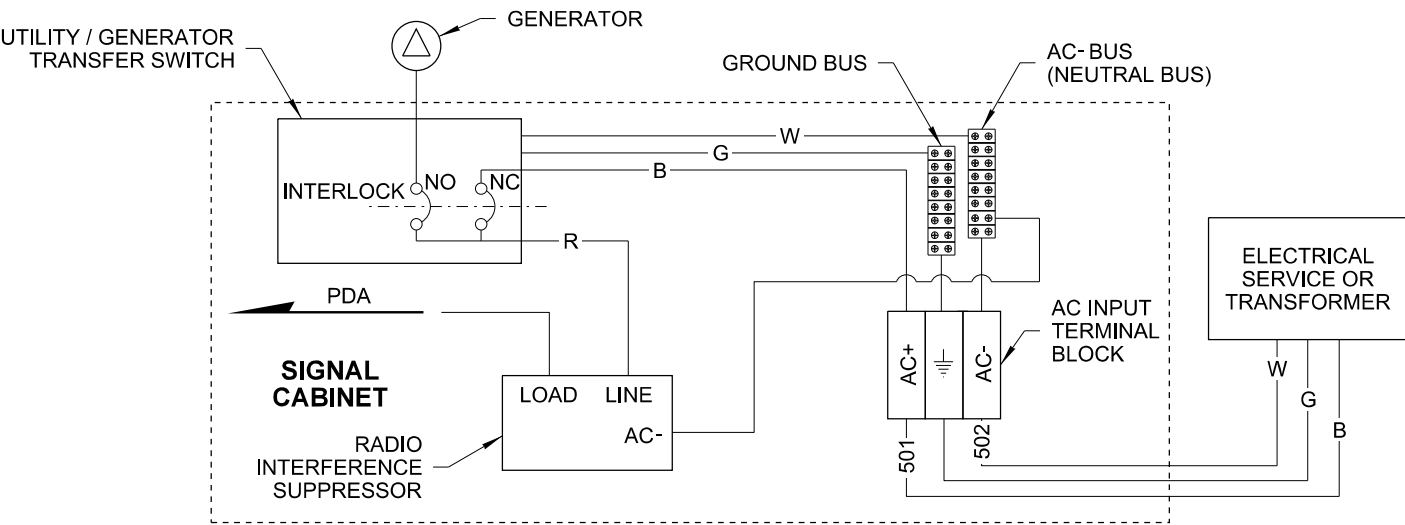
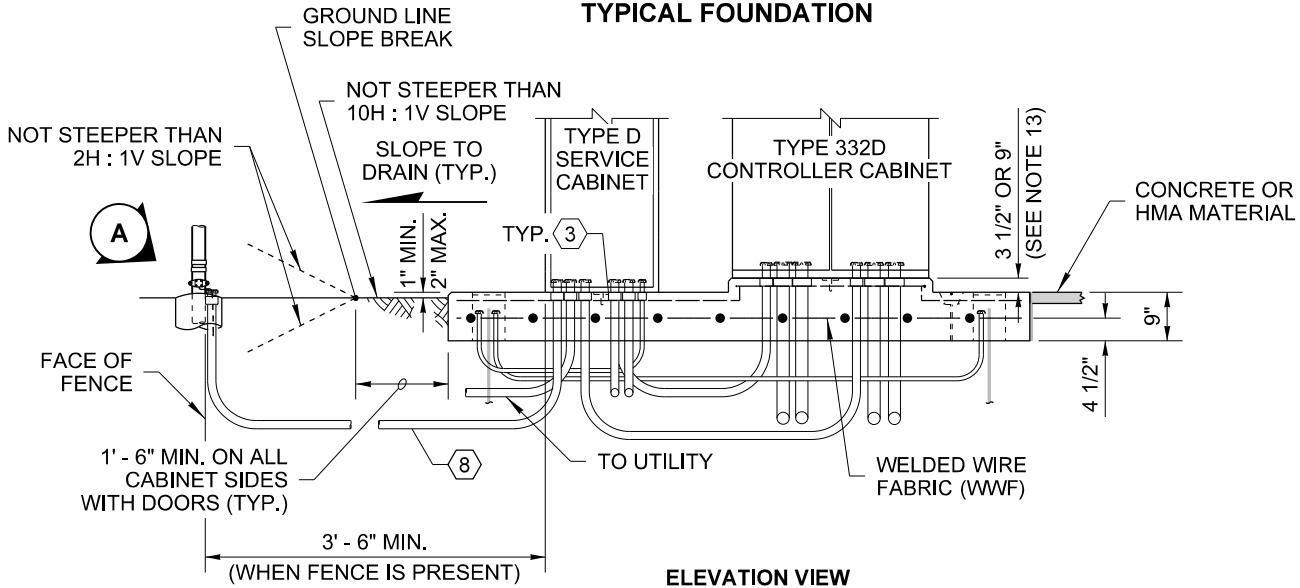
NEMA P44 CONTROLLER CABINET



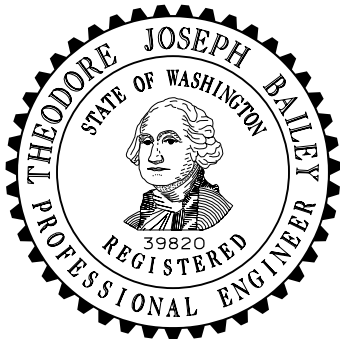
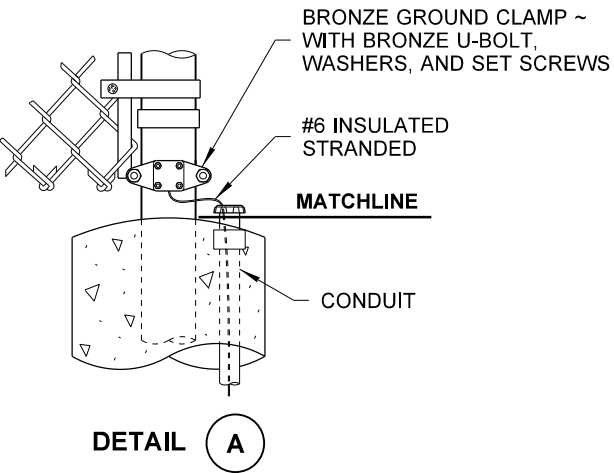
TYPE 333SD CONTROLLER CABINET



PLAN VIEW  
TYPICAL FOUNDATION



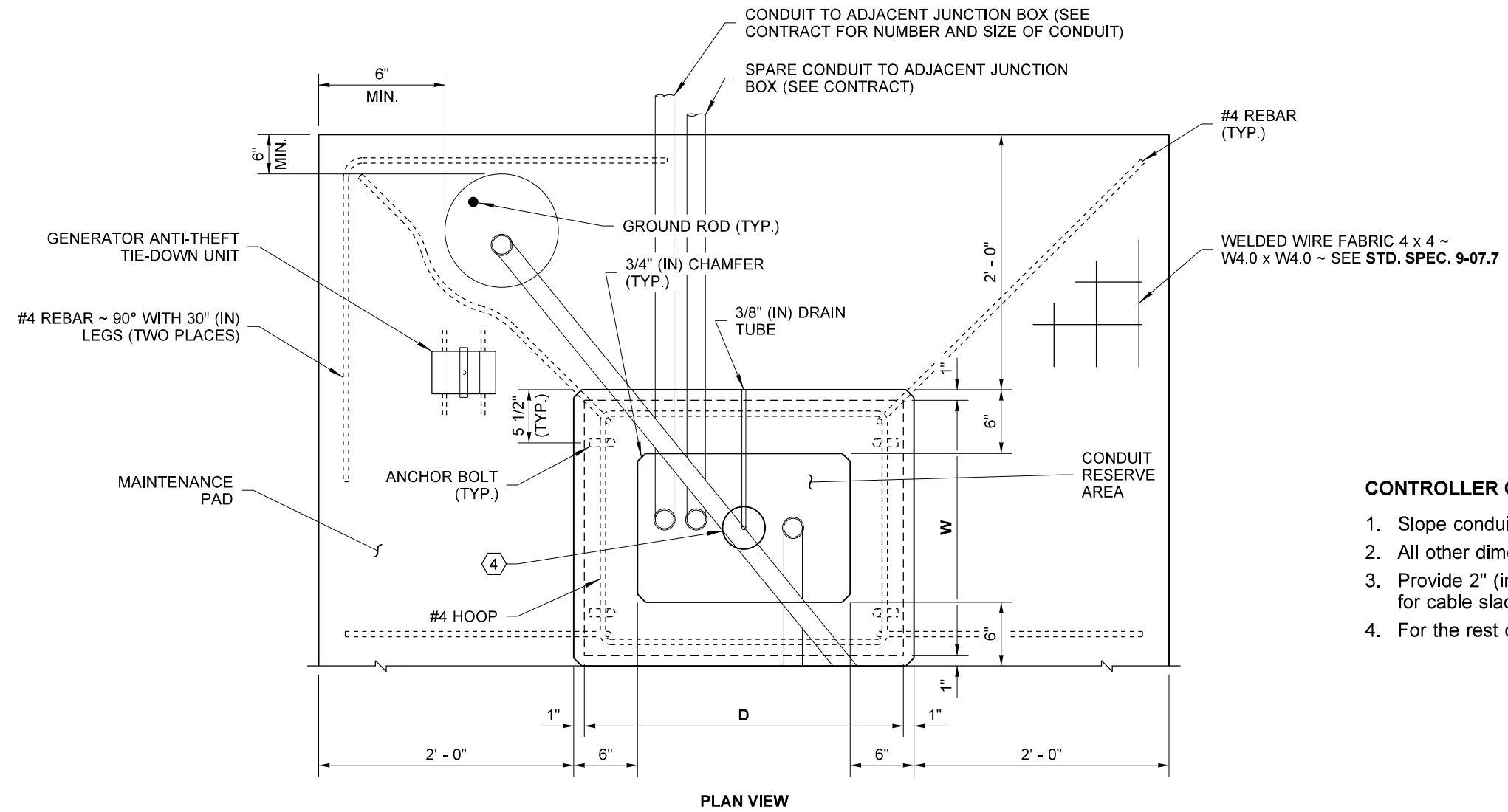
TRANSFER SWITCH CONNECTION  
TYPICAL WIRING DIAGRAM



**CABINET ORIENTATION  
CONDUIT LAYOUT AND  
FOUNDATION DETAIL  
STANDARD PLAN J-10.10-03**

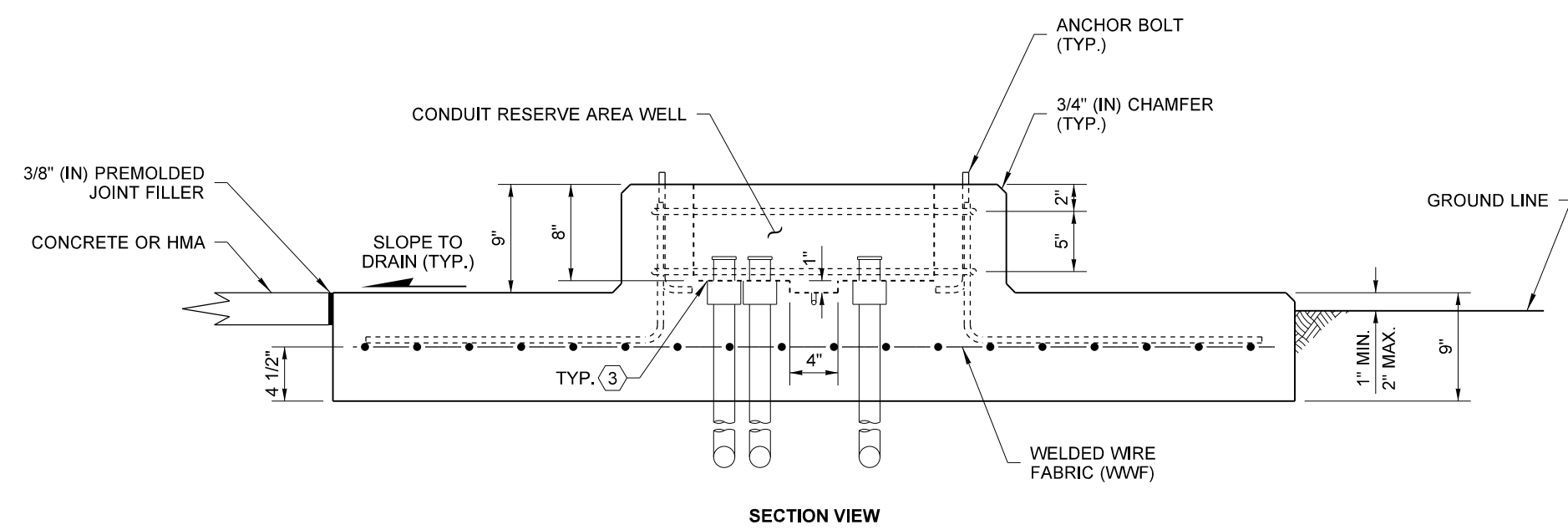
SHEET 5 OF 6 SHEETS

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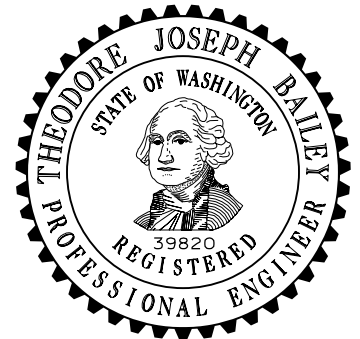


**CONTROLLER CABINET FOUNDATION NOTES**

1. Slope conduit reserve area floor 1/4" (in) per 1' (ft) to the sump in the center.
2. All other dimensions shall be approved by the Engineer.
3. Provide 2" (in) clearance between conduit and edge of foundation well for cable slack.
4. For the rest of the foundation, see **Standard Plan J-10.20** for details.



**CONTROLLER CABINET FOUNDATION DETAIL**



**CABINET ORIENTATION  
CONDUIT LAYOUT AND  
FOUNDATION DETAIL  
STANDARD PLAN J-10.10-03**

SHEET 6 OF 6 SHEETS

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